

CLAIMS

1. A method of manufacturing an optical recording medium by forming a resin layer on a first surface of a disc-like substrate and then forming a center hole that passes through the disc-like substrate and the resin layer, wherein the center hole is formed by forming, in the resin layer, a circular cut with a larger diameter than the center hole so as to surround a formation position of the center hole and then pressing a punching blade for forming the center hole into the disc-like substrate from a second surface side of the disc-like substrate.
2. A method of manufacturing an optical recording medium according to Claim 1, wherein the cut is formed in the resin layer with a depth that reaches the first surface.
3. A method of manufacturing an optical recording medium according to Claim 1, wherein a substrate pressing jig is placed in contact with the second surface of the disc-like substrate and the contact is maintained while the cut is formed in the resin layer.
4. A method of manufacturing an optical recording medium according to Claim 1, wherein a resin layer pressing jig is placed in contact with the resin layer and the contact is maintained while the center hole is formed by pressing the punching blade into the disc-like substrate.
5. A method of manufacturing an optical recording medium according to Claim 4, wherein the cut is formed in the resin layer by placing the resin layer pressing jig, in which a cut

forming blade is formed with a height in accordance with a depth of the cut, in contact with the resin layer.

6. A method of manufacturing an optical recording medium according to Claim 1,

5 wherein the center hole is formed by pressing the punching blade into the disc-like substrate while the punching blade is vibrated by ultrasound.

7. A method of manufacturing an optical recording medium according to Claim 1,

10 wherein when the disc-like substrate is molded, a concave part with an equal diameter or a substantially equal diameter to the center hole is formed at the formation position of the center hole in the second surface
15 of the disc-like substrate.

8. An optical recording medium manufacturing apparatus capable of forming a center hole that passes through a disc-like substrate and a resin layer that has
20 been formed on a first surface of the disc-like substrate, the optical recording medium manufacturing apparatus comprising:

a cut forming blade that can form a circular cut with a larger diameter than the center hole in the resin layer
25 so as to surround a formation position of the center hole; a punching blade for forming the center hole; and a control unit that controls movement of the cut forming blade and the punching blade,

wherein the control unit forms the cut by moving the cut forming blade toward the resin layer and pressing the
30 cut forming blade into the resin layer and then forms the center hole by moving the punching blade toward the disc-like substrate from a second surface side of the disc-like substrate and pressing in the punching blade.

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9. An optical recording medium manufacturing

apparatus according to Claim 8,

wherein the cut forming blade is constructed so as to be capable of forming the cut with a depth that reaches the first surface.

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10. An optical recording medium manufacturing apparatus according to Claim 8,

further comprising a substrate pressing jig that presses the second surface of the disc-like substrate in accordance with control by the control unit during formation of the cut,

wherein the control unit forms the cut by placing the substrate pressing jig in contact with the second surface of the disc-like substrate and moving the cut forming blade while maintaining the contact.

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11. An optical recording medium manufacturing apparatus according to Claim 8,

further comprising a resin layer pressing jig that presses the resin layer in accordance with control by the control unit during formation of the center hole,

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wherein the control unit forms the center hole by placing the resin layer pressing jig in contact with the resin layer and moving the punching blade while maintaining the contact.

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12. An optical recording medium manufacturing apparatus according to Claim 11,

wherein the resin layer pressing jig is constructed so as to include the cut forming blade whose height is in accordance with a depth of the cut,

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and the control unit forms the cut in the resin layer by placing the resin layer pressing jig in contact with the resin layer.

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13. An optical recording medium manufacturing

apparatus according to Claim 8,

further comprising an ultrasonic generator that applies vibration to the punching blade using ultrasound,

5 wherein the control unit forms the center hole by pressing the punching blade into the disc-like substrate while causing the ultrasonic generator to apply vibration to the punching blade using the ultrasound.

10 14. An optical recording medium manufacturing apparatus according to Claim 8,

further comprising a positioning convex part that is formed so as to be capable of engaging a positioning hole formed in the disc-like substrate in a center of a formation position of the center hole, is attached to a center of the punching blade via an elastically deforming part, and is projected beyond a blade edge of the punching blade.

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